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*On the CONDITION of the METALLIC CURRENCY of the UNITED KINGDOM,  
with reference to the QUESTION of INTERNATIONAL COINAGE. By  
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[Read before the Statistical Society, 17th November, 1868.]

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*I.—On the Necessity for a Recoinage, and the Introduction of an International Money.*

“All things good chepe I trust to se er I dye,  
Coyns, measures and weyghtes in good uniformitie  
Thorow all the world, I trust to se schortely.”\*

FOR nearly half a century the subject of the metallic currency has been left to slumber. The deficiency and imperfections of the coinage were, in previous years, an ever-recurring matter of complaint, and our libraries bear evidence to the inquiry and thought bestowed upon the removal of these defects by Locke, Vaughan, Lowndes, Newton, Harris, and many other writers. But now it is the paper currency and the banking system which give rise to endless publications, while the gold and silver currencies are regarded as placed upon an indisputable foundation.

There can be no doubt that we are much indebted to the act of Parliament (56 Geo. III, cap. 68, 22nd June, 1816), which still contains the principal regulations for the issue of our coins, and which was, to a great extent, based upon the recommendations of Lord Liverpool, in his admirable and celebrated “Treatise on the Coins of the Realm, in a Letter to the King” (Oxford, 1805). Since that act came into operation both gold and silver coins have been

\* From a ballad of the sixteenth century (Printed by Cornelis Woltrop, dwellyng at Saynt Anthonies), pointed out to me by Mr. W. Langton. The next line runs—

“Onles that diversitie doth more good, it be true.”



issued, year after year, with hardly any intervention or change, excepting a very partial recoinage in 1841-43, so that we now have coins in circulation extending in almost unbroken succession over more than fifty years.

But I shall have to point out that the present law concerning the gold currency does not really work so perfectly as is supposed. It may possess a certain theoretical perfection, but in practice it has broken down, and it now fails to prevent our gold coinage from becoming seriously worn and depreciated. Although the Mint has coined since the beginning of 1850 the enormous sum of ninety-eight millions sterling, more than half these coins have become a prey to bullion dealers and exporters; and these vast issues have not had the effect of driving out of use the worn coins of earlier years. Some change of the law, or some very decided intervention of the State, can alone succeed in restoring to our standard of value its boasted perfection, or prevent it from becoming gradually depreciated still further.

But it happens that while intrinsic causes are arising for some alteration of our Mint regulations, the project of an international money, now for the first time put forward in a feasible shape, affords the strongest motives why we should reconsider our position in an enlightened spirit. The Royal Commission lately appointed for the purpose have allowed, in their somewhat ambiguous report, the extreme utility of an international money, but have pointed out certain technical difficulties which must, in their opinion, prevent this country from taking any steps to further this truly grand scheme until after much further deliberation. I do not hesitate to say that these difficulties are wholly imaginary, and arise either from a misapprehension of the theory of value, or from the difficulty of overcoming the prejudices of a state of things now likely to pass away. I feel sure that there is no difficulty that need prevent us from at once joining the international monetary convention. This step would at once place the realisation of a world-wide money beyond doubt; and it might be made without in the least disturbing the standard of value in this kingdom, or occasioning any breach of contracts or alteration of accounts. A concurrence of circumstances truly remarkable renders it almost indispensable that we should make the change required; and I undertake to show that instead of occasioning cost and difficulty the trifling alteration of the sovereign is the only mode by which we can impart practical as well as theoretical perfection to our metallic currency.

The change which is pressed upon us by so many considerations is of the simplest possible character, and consists merely in the Mint coining gold sovereigns for the future nearly 1 per cent. less



heavy than at present, this quantity of gold to be appropriated as a mint charge to cover the cost of coinage and maintenance of the currency.\* We should thus secure the following remarkable series of advantages :—

1. Our sovereign, being assimilated in value and weight to a 25-franc piece, would at once become the current coin of the world, and being issued chiefly from British, American, and French mints, a world-wide gold currency of unimpeachable fidelity and excellence would be obtained.

2. As the sovereign would soon become current in all civilised countries, it would no longer be necessary in making remittances to melt the coin and have it recoined at considerable charge in a foreign mint. The foreign exchanges would then be more quickly and accurately adjusted than at present, and our standard of value, instead of being impaired, would really become more perfect.

3. The questionable practice of picking the heavy sovereigns for remittance or for melting, which is now universally practised, would be almost entirely prevented, and we should no longer stand in the absurd position of coining many millions of sovereigns which pass almost immediately to the melting pot.

4. The Government being relieved, without cost to any one, of the expenses of coinage, might very properly take upon themselves the withdrawal of improperly light coins, the circulation of which is liable to occasion most unjust loss and inconvenience under the present law.

As the Royal Commission do not deny the advantages of an international currency, I shall mostly confine myself to meeting the supposed difficulties and the real prejudices which stand in the way.

The most formidable of these prejudices, I conceive, arises from our national pride in the fact that the sovereign is known and respected in nearly all parts of the world, and is the actual currency of some countries, such as Portugal, Brazil, and Egypt. Our present system of free coinage tends, it is supposed, to promote this diffusion of British coin, and the cost of coinage is regarded as a trifle compared with the dignity of this position. We overlook the fact, indeed, that we probably bear the expense of the wear of sovereigns in all parts of the world, for about a million and a-half sterling of British coin is reimported every year on an average, according to the Custom House returns. This coin will include at least an average amount of light coins, while it is certain that the

\* For the details of this scheme I must refer to the privately-printed pamphlet of Mr. Hendriks, in which it was, I believe, first advocated in this country, or to the very able evidence and memoranda of Mr. S. Brown, Mr. Hendriks, and Colonel Smith, printed in the recent report of the International Coinage Commission.



coin exported consists almost entirely of heavy coins. The home circulation thus becomes the sink into which all light coins will readily find their way, to our cost.

Supposing, however, that the diffusion of the greatest quantity of British coin over the world is a worthy object, shall we not best attain it by entering the convention? Surely it is we that will become by this step the great producers and distributors of the coinage of the world. As we strive, by opening our ports and accommodating our productions for foreign use, to render this island the great *depôt* and manufactory of the world, so we shall, by rendering our coinage fit for foreign circulation, acquire a nearly complete ascendancy in the specie trade. In Australia, in New Zealand, and probably in South Africa, we hold the most productive gold mines in the world, and of what is produced elsewhere a large part passes direct to London, the monetary centre of the world. We shall, therefore, become, without doubt, the greatest coiners. The possessors of California, it is true, will be our partners in this monopoly, but they are friends whom we can trust to coin as faithfully as ourselves. British mints, therefore, in company with Anglo-American mints, will become to the gold currency of future years even more than the mints of Spain, and Peru, and Mexico have been to the silver currency. The Spanish dollar has long been the most esteemed coin, and has even circulated in this country within the present century. But gold is now definitively taking the place of silver, and some gold coin must take the place of the dollar. If we are not misled by foolish pride, we shall take, while we can yet do it with a good grace, the step of adopting our sovereign to become the new gold currency of the world.

I may add, that if we place any opposition or obstruction in the way of the International Monetary Convention, they have a most justifiable and powerful weapon ready to ensure our defeat. It is only necessary for the continental nations and the United States to issue, as is already proposed, a piece of 25 frs. in order to supplant the sovereign. For as the new coin would have the value of a well-worn sovereign, it would soon be accepted equally with the sovereign in all foreign countries and our colonies, if not at home. At the same time, the difference of value being about 2*d.* in the pound, would ensure the melting of all new sovereigns in preference. Thus, however many sovereigns are coined, we should never succeed in dislodging the 25-franc piece from circulation. More even than at present, our British mints would perform the labours of the Danaïdes, ever pouring forth new and beautiful coin, at once to disappear into the bullion dealer's crucible. The sovereign would be an evanescent coin, constantly liable to be recoined with the permanent impress of a foreign mint. Common



sense, as well as invariable experience, tell us that we must be worsted in this contest of the heavier and the lighter coin.

But the great bugbear which appears to have deterred the royal commission from recommending the slightest change in our currency laws, is the supposed injury to the theoretical perfection of our standard of value. If, on the one hand, we lower the sovereign without imposing an equivalent mint charge, we violate all contracts, and degrade the old standard to the extent of 2*d.* I need hardly stay to point out how easily all home contracts, of any considerable amount, could be readjusted by law, the alteration of accounts being no more difficult than that performed frequently in the case of the income tax. As regards smaller payments, which cannot be so readjusted, it might surely have been noticed, that an exact adjustment of price is hardly ever attempted in such cases, the nearest round number of shillings or pence being arbitrarily chosen. Tolls, cab fares, many railway fares, entrance fees, &c., in short small customary charges of a fixed character are never calculated so as to meet the exact average cost, which could seldom be done. An approximate round sum is chosen with a view to convenience, and profit and loss are left to adjust themselves. To the same natural adjustment might be equitably left the very small arbitrary change of 2*d.* in the pound.

But all inconvenience or injustice arising from the change of the sovereign, might be entirely avoided by the imposition of a seignorage, or mint charge, equal in amount to the value of the gold subtracted. This seignorage is really desirable on several other distinct grounds, but it is condemned by the Commission, as tending to destroy the theoretical perfection of our standard of value. With all respect to the eminent members of this Commission, I must hold that some of them have lost their way in the intricacies of the theory of value. Questions were even asked which implied that value was something inherent in a coin, like its colour or its weight, so that the value must be reduced with the weight. This is a radical misapprehension, which must prevent any clear or sound conclusions on the subject.

To understand the point in dispute, we must remember that there is no such thing as value intrinsic in a thing, but that, in an economical sense, the values of two things merely express the ratio in which they do as a fact exchange for each other. Thus if, *de facto*, 100 ounces of gold are taken to the mint every day, and 99 ounces of coin received back in exchange, this would actually establish the fact that 99 ounces of coin have the same value, at the time and place in question, as 100 ounces of gold. Since the facilities of transit render the values of bullion and coin sensibly the same all over the country, it follows that as long as there is any demand for



coin at the mint, the values of gold and coin are defined by the mint ratio of exchange. The value of the coin, compared with bullion, cannot be raised above this rate without the mint being set to work to restore equilibrium. On the other hand, the value of coin cannot fall unless there be already a superabundance of it, so that the mint is stopped working. In this case the value of the coin may undoubtedly fall more or less, provided that there are persons who wish to have gold in the form of bullion rather than coin. So soon as the comparative values were altered 1 per cent., it would be profitable to make the reverse exchange by melting the coin into bullion. But why should bullion be wanted and not coin? At present bullion is wanted because our coins cannot be used to make payments in foreign countries where they are not current, and they therefore lose, on passing our shores, whatever value may attach to them as coins. But the proposition of an international money, altogether alters the facts of our argument. Should our coins be current abroad, and should foreign mints charge a seignorage exactly equal to ours, as is proposed, then it must happen that when we have to make a payment abroad, or, in other words, to add to the currency of that country, our coins will bear exactly the same premium over bullion for that purpose that they have here. The reduction of coin into bullion would then necessarily produce a loss, and would only be resorted to for purely exceptional purposes.

So imbued are we with the prejudices and imperfections of our present system, that we cannot easily conceive the natural result of an universal money, namely, that gold and silver would be almost wholly held in the form of coin. Certain small supplies of bullion would, no doubt, be convenient for gold and silversmiths, gilders, and other artisans who consume the precious metals; but in respect to its main employment, it would be found almost always advantageous to convert gold into coin at the first opportunity, as its value is thereby exactly ascertained, and all future expenses for melting and assay would be avoided.

It is now apparent that our standard of value will be improved instead of being injured by the proposed arrangements. For at present, when the exchanges are against us, our currency must always be liable to fall in value to the extent of the mint charge in foreign countries, in addition to the costs of transit. But in the proposed international system, the coins having already paid the mint charge, will effect payments abroad without any depreciation.

One paragraph in the report of the commissioners betrays a confusion of thought, for they say: "If the new sovereign, containing only 112 grains of fine gold, retains, in consequence of the imposition of a seignorage, the value of the old sovereign, it would retain its superiority in value over 25 frs. If it is equal in value



“ to 25 frs. of the present French currency, it would not be equal in value to the existing sovereign.”

But it is apparent that at present, in the absence of an international currency, we measure only the gold in our sovereign against the gold in 25 frs., and, in calculating the par, no account is taken of the mint charge in France, which is an uncertain amount. The fact has even come out during the discussion, that the true pars of exchange are not accurately ascertainable in the absence of precise information concerning the mint charge in different countries.\* No exact comparison can at present be made between the value of the franc *plus* a mint charge, with the sovereign without a mint charge. But it is indisputable that if both coins and mint charges are exactly assimilated, there will be no difference in value possible between the currencies of France and England, but such as may arise from the natural variation of the exchanges, and this will be restricted within the very small cost incurred by the transmission of specie.

The grounds on which a mint charge has been hitherto opposed in England, are stated in the clearest manner in Lord Liverpool's treatise, and are four in number:—

1. Because the principal measure of value would not in such case be perfect.

2. Because merchants in exporting the coins would lose the mint charge, and would raise the price of foreign goods in order to transfer the loss to consumers.

3. Because a reduction in the weight of the sovereign would be necessary, and, consequently,

4. A recoinage would be requisite.

But when Lord Liverpool set forth the above objections he had no thought of an international money, which is a condition changing the whole grounds of the question. It is apparent that merchants will lose no mint charge if they send abroad coins equally current there as here; that, therefore, the whole necessity for the reduction of coin to bullion will disappear, and the coin, minted under uniform conditions, will form as perfect a measure of value for the future as bullion or freely coined gold has been in the past confusion of currencies. I may say, with confidence, of Lord Liverpool, what he has said of Mr. Locke:† “Observing that the

\* See a statement by Mr. Hendriks, who throws great light upon this subject, in the “Report of the International Coinage Commission,” p. 142. Mr. E. Seyd, in a pamphlet published since this paper was written, attempts to show that the cost of converting gold bullion into coin is usually higher in London than in Paris. Much new technical information concerning the bullion trade is contained in Mr. Seyd's new work on “Bullion and Foreign Exchanges.”

† “Treatise on the Coins of the Realm,” p. 172.



“state of the coins of the kingdom is wholly changed from what it was when he considered this subject, it is probable that, if this great man had lived to the present times, he would have been sensible of the change: he would have applied his principles to the facts as they now exist, and would have drawn his conclusions in conformity to them.”

It will be noticed that, in addition to theoretical reasons, which operated against the expediency of a mint charge in Lord Liverpool's days, but which will vanish when coins are of international currency, there were in those days two strong practical difficulties—that a reduction of the sovereign and a recoinage would be requisite. But it so happens that this reduction of the sovereign is the very thing we now want to effect, and the mint charge is recommended as a mode of effecting it without trouble. The first three of Lord Liverpool's objections having been completely reversed, it is truly strange to find that the fourth has suffered the same fortune by the course of time. The costs of recoinage are not incurred, but are positively saved by our accepting the proposals to assimilate our sovereign to a 25-franc piece.

The free mintage system and the other provisions of our present currency law are gradually landing us in a position of much difficulty. For the law at present holds that a sovereign is not legal tender unless it weighs at least  $122\frac{1}{2}$  grains; and, as a kind of legal fiction, every person is supposed to have by him, whenever he receives gold coin, a pair of scales capable of detecting light gold. Every person must bear the loss if he receives a coin which is afterwards rejected as too light, and the Government declines all responsibility concerning the weight of gold coin when once in the hands of the public. But the weighing of coin is so generally impracticable and troublesome, and even the refusal, much more the cutting of a light coin, would so often be considered a discourteous act, that the practice is almost entirely abandoned by the public. Such banks and railway companies as cannot altogether avoid loss on this account, prefer to bear it rather than inconvenience their customers, but almost everybody manages to put off the loss by passing on the light coins. The Bank of England and its branches and a few Irish banks alone observe the law with rigour. The natural consequence is, that all experienced persons, in making payments to the Bank of England, keep back worn coins with great care, and the bank is rendered powerless in withdrawing an adequate quantity of light money. Thus it arises that there is a mass of about 20,000,000 of light sovereigns and 5,000,000 or 6,000,000 in value of half-sovereigns circulating in defiance of the law. This light coin forms almost a third part of the sovereign circulation, and nearly a moiety of the half-sovereign circulation;



but, being unequally distributed, we find that in some of the agricultural districts the proportion of light sovereigns rises to 44 per cent. The average deficiency of the sovereigns, as I shall show, is fully 53 per cent., or more than 10s. in 100l., while the half-sovereigns are depreciated more than twice as much, or about 22s. in 100l.

Much evil and injustice arise from this discreditable state of our currency. The public having universally abandoned the weighing of coin, the burden of the light gold is most unequally borne, and falls chiefly upon the districts where coin tends to accumulate. I shall give evidence tending to show that new coin is mostly distributed in the manufacturing districts, where there is always a want of coin for the payment of wages. In such parts little or no loss from light gold is encountered. But there is a strong tendency for the coinage to migrate into the agricultural districts, and a plethora of gold presses upon the banks which serve such districts. The loss incurred in remitting this surplus of gold to London would be of a most serious amount, were not the practice universally adopted in such circumstances, of picking out the new Victorias for remittance, the old worn coin being put into circulation again as soon as possible. This process of sieving and picking, through which the gold coinage is perpetually passing, is not only a source of labour and trouble, but is of questionable legality and expedience. And though most bankers may thus succeed in escaping loss, the weight falls all the more unfairly upon those who happen to have too great a plethora of coin. Thus, I have unquestionable information that one large banking establishment lost in this way, during the year ending 30th September, 1868, the sum of 6,716l., and this, I am assured, is in addition to "a large loss in interest on the stock we keep, so as to avail ourselves of any opportunity of placing the coin in circulation." As the average loss upon the light gold sold as bullion by this bank was 1·363 per cent., it would evidently be better to keep the coin on hand for many months at the present rate of interest, provided it could be ultimately pushed off into circulation. I apprehend, too, that the lightness of the coin must restrict the use of Bank of England notes in some districts; for the loss of interest on a bank reserve will be the same whether it be held in notes or coin. Thus many banks which have a surplus of gold will hold it for the chance of being able to pay it away to the public rather than bear the loss on the light coin in replacing it by notes, as might otherwise have been done to the convenience of every one.

This is a weak statement of the evils which follow from our depreciated gold currency. I feel sure that as soon as public attention is called to the subject, it will be found impossible to resist the



necessity for a recoinage like that of 1841-43, but on a more extensive scale, which shall restore to our standard of value its due credit and perfection. Twenty-five years have elapsed since the Government last undertook the charge of withdrawing light coin, and, though the Bank of England has continued to withdraw annually about half a million, or in the last few years rather more, this is wholly inadequate to meet the accumulated wear of a great currency. Assuming, then, that the Government must, before long, undertake the charge of a recoinage, let us consider the comparative cost under the old and the proposed new system.

The sovereigns in circulation amount, as I shall show, to 64,500,000 at the most, of which  $31\frac{1}{2}$  per cent. are below the legally current weight. In short, about 20,000,000 of sovereigns require to be withdrawn if we desire to maintain the credit of our currency on its present footing, together with 11,500,000 of half-sovereigns, in all 31,500,000 coins. The cost of this recoinage, as afterwards shown, may be estimated at 348,000*l*. Regard it how we will, this is a sum which, if we maintain our present law, must be paid either by individuals in an arbitrary and unjust method of taxation, or by the Government in a more equitable manner.

But now let us consider how legitimately and easily we may use the present circumstances of our circulation to assist in the beneficent scheme of an universal money.

Judging from the age of the present circulation of sovereigns, which is a pretty sure guide to the weight, as subsequently shown, I should estimate their relation to the weight of the 25-franc piece as follows :—\*

	Per Cent.
Too heavy to pass as 25-franc piece .....	70
Of proper weight.....	25
Too light .....	5
	<hr/>
	100
	<hr/>

In introducing the new sovereign, the 25 per cent. of the old ones which are of proper weight would, of course, be left untouched for the present. The 5 per cent. of lighter ones might also be left, as they would, by degrees, fall into the Bank of England in the

\* The standard weight of the 25-franc piece of gold, eleven-twelfths fine, is taken at 7·9179 grms. (122·19 grains), with a mint allowance of  $\frac{1}{4}$  or  $\frac{1}{2}$  per mille, and an allowance for wear in addition of  $\frac{1}{2}$  per cent. The higher and lower limits of currency are thus 7·9337 and 7·8625 grms. In the "Transactions of the Manchester Statistical Society," 1868, p. 88, I have given a somewhat different statement, on the supposition that  $\frac{1}{2}$  per cent. deviation from the standard, in excess or defect, might be allowed.



ordinary course of business, so soon as the practice of picking the coins was abandoned, as it would doubtless be. The remainder of the sovereigns in the hands of the public, with all the new coin in the Bank, might be recoinéd at a convenient rate, and the quantity being 48,500,000 at the most, could be reissued, if necessary, in three years, at a cost of about 65,000*l.* The excess of weight of the old sovereign over the new coin, would yield a sum of 280,000*l.*, which, if secured in the form of a mint charge, would form a net profit to the Government of 215,000*l.* This recoinage might be carried out by the Mint buying up each sovereign with a new 25-franc piece, appropriating the difference of weight as a part of the intended mint charge of 1 per cent. The full charge would, of course, be imposed on any bullion brought for coinage, so that the new coin would at once have, for home circulation, exactly the same value as the old sovereign. There would be no necessity, indeed, for the Mint to make any unusual recoinage at all, except for the purpose of securing the profit, and only just such coins as return an adequate profit need be withdrawn at first. For years to come the exporters and melters of the coinage will doubtless operate as they have been accustomed to do, and the real establishment of an universal money must take many years to effect. To them it might be left to clear off such sovereigns as the Mint could not recoin with advantage. In fact, as the whole change of weight lies well within the limits of weight of the coins now in familiar use, the public need never feel that any change is being made at all except by noting the improved appearance of the new coins.

The half-sovereigns might for a time be left untouched, as they would, to a great extent, be of proper weight to pass as 12½-franc pieces, and would be required only for home use.

The total difference, then, of the two modes of effecting a recoinage is a possible profit of 215,000*l.*, instead of a certain loss of 348,000*l.*; in all a difference of more than half a million. In imposing a mint charge, however, the Government might most properly undertake to prevent the coinage falling again into its present discreditable state by constantly withdrawing, at its own cost, a certain amount of light gold. The loss would be more than covered by the mint charge on an average of years, and as British mints would coin for other countries more than they would coin for us, in fact, as we should levy considerably more revenue at the mint than they, we need not fear being improperly burdened with a loss on worn coin. Some international agreement may become necessary as to an equitable mode of distributing this loss, but it is certain that we need no longer pay out of our own pockets both the cost of coinage and the cost of the wear of coin in several foreign countries and many colonies as we at present do.



Whatever it may have formerly been, our free coinage system will for the future be reduced to a complete absurdity, and can be supported only by unreasonable prejudices. It was long ago described by Sir Dudley North as "a perpetual motion found out, "whereby to melt and coin without ceasing, and so to feed gold-smiths and coyners at the publick charge;" and such it continues to the present day. It is condemned by the experience of all foreign governments which have tried it, nor is it at all supported by our greatest economists, for Adam Smith, Ricardo, Tooke, J. S. Mill, and many others agree in regarding a small mintage as a sound and desirable imposition. Not only is the present Master of the Mint clearly in favour of a mint charge, but I find, from a correspondence of the year 1852, published in the Report of the International Coinage Commission, that Sir John Herschel, while Master of the Mint, had formed a strong opinion against the present system, and had most clearly and forcibly pointed out the evils and absurdities into which it leads us.

The time is come, then, for us to make that slight alteration in the law of 1816, which shall at once remedy the technical imperfections in our currency and secure to ourselves and to the world a boon which we could hardly have conceived possible a few years ago. Our main object should be to aid in the establishment of an universal money, which shall furnish every nation with a sure standard of value and an uniform medium of exchange. Had we, in pursuit of so great an end, endured some inconvenience at home, we should be amply repaid by gain abroad. Our interests are in every part of the world; our traffic is with every country both civilised and uncivilised. By a far-sighted policy we have promoted the most free exchange of commodities with all the world, but our financiers seem to be unable to see that a similar policy in regard to money is a natural and necessary corollary. It is well to have a good currency at home, but to our foreign trade it is equally important that there should be a good currency abroad. The calculations of profit must be based upon one as much as upon the other. At present the calculations of the foreign exchanges require great skill and experience, and foreign merchants are generally superior to our own in the mysteries of commercial arithmetic. It was given in evidence that shippers of goods, even to some parts of the continent, have to charge a small advance of price to cover their uncertain knowledge of the foreign money, and in other parts of the world the confusion and imperfections of the currency are far worse.

All this will be gradually changed if we join the Monetary Convention, and adapt our sovereign for foreign circulation; for we should bring with us our great system of trade, our many colonies,



and in time the currency of our Indian dependency. The United States would decide the question as regards North America, and the new sovereign, as we might continue to call it, becoming current in all civilised countries, would soon find its way to every part of the globe. It would soon form an accurate term of comparison, and might eventually compose the mass of the currency; at the same time our home circulation would be improved without the least trouble or cost, and no prejudice would be done to the future introduction of a decimal system. It would be an act of the greatest folly in us to make any radical alteration in our fractional money before the future unit of the Monetary Convention shall have been chosen. This unit will certainly be in a simple ratio with the franc, so that the assimilation of the sovereign to the 25-franc piece will be the first and most judicious step towards a decimal money.

In the following parts of this paper I shall give the details of an investigation into the quantity and condition of our gold currency, upon which many of the preceding estimates and arguments are founded.

## II.—*An Inquiry into the Amount and Age of the Gold Currency.*

In order to ascertain as precisely as possible the amount and condition of the gold currency, I have lately carried out an inquiry into the composition of the currency as regards age. It occurred to me that if the comparative number of sovereigns of different years' coinage now in circulation were determined by a kind of partial census, not only might some new facts come to light, but data might be obtained for solving several important problems. The amount of the currency might thus, as it seemed to me, be estimated with more certainty than has hitherto been possible, for it necessarily happens that the coinages of recent years are less diminished by exportation, melting, or loss than those of earlier years; and as there are no reliable data for estimating the great amount of coin thus subtracted from our circulation, the only resource is to eliminate these quantities, as far as possible, from our calculations. Now this can be done by taking the coinages of recent years as a measure to apply to the whole currency; for just as we estimate the length of a room by trying how many paces long it is, although we do not know with perfect accuracy the length of a pace, so I thought that the number of coins of a few recent years now in circulation, although not known with much precision, would yet be the best standard of measurement. This is no new mode of estimation in statistics, but it has not hitherto been applied to this subject with any care.



To carry out this notion, I distributed a circular letter and blank form to a number of bankers and other gentlemen, requesting them to take one or two hundred pounds in sovereigns, and half the amount in half-sovereigns, from gold received in the ordinary course of business, and to cause the number of coins of each date to be counted and stated in the form. The aid thus requested was furnished with a readiness which I had no right to expect, and which I cannot sufficiently acknowledge. Not a few gentlemen, on becoming acquainted with my purpose, procured very extensive returns,\* and the final result was that this kind of census of the gold coinage was extended over one-sixth of a million of coins thus composed:—

Number of sovereigns enumerated.....	90,474
„ half-sovereigns „ .....	75,036
	<hr/>
Total number .....	165,510
	<hr/>

At least one gold coin in every six hundred now existing in this country was, on the average, enumerated; and as there were 321 separate returns received from 213 distinct towns or localities, including almost every place of commercial importance, it may be allowed, I think, that sufficient data were acquired for determining the average character of the circulation.

A complete reduction of these returns yields the following table of the comparative number of sovereigns and half-sovereigns of each year's coinage found in 100,000 coins; for sake of comparison, the actual number of coins issued in each year are added:—

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\* I am especially indebted to the Governor of the Bank of Scotland for an enumeration of 48,647 coins at the various branches of that bank. The general manager of the London and Westminster Bank most kindly forwarded me a similar complete return for his district. Messrs. Biddulph and Wood, of Swansea, procured me many valuable returns from the banks and large works in that neighbourhood, and to the following I am indebted for special aid in procuring the larger enumerations: Mr. Walliker, post-master of Hull; Professor J. E. T. Rogers; Mr. John Mills and Mr. Thomas Browning, of Manchester; Sir John Lubbock; Mr. Sargant, Messrs. Chance Brothers, and Mr. Chamberlain, of Birmingham; Mr. J. Pilling, of Stafford; Mr. Eugene Bean, of York; Mr. J. H. Barber, of Sheffield; and Mr. Henry Haley, of Halifax.



Year of Coinage.	Sovereigns.		Half-Sovereigns.	
	Number Issued from the Mint. [000's omitted.]	Number now Existing in 100,000 Sovereigns Circulating.	Number Issued from the Mint. [000's omitted.]	Number now Existing in 100,000 Half-Sovereigns Circulating.
1817 .....	3,235,	198	2,080,	384
'18 .....	2,347,	8	1,030,	136
'19 .....	4,	1	—	3
1820 .....	932,	308	35,	43
'21 .....	9,405,	738	231,	8
'22 .....	5,357,	485	—	8
'23 .....	617,	87	224,	35
'24 .....	3,768,	334	592,	167
'25 .....	4,200,	1,239	761,	247
'26 .....	5,724,	2,201	345,	181
'27 .....	2,267,	915	492,	172
'28 .....	386,	38	1,245,	430
'29 .....	2,445,	1,057	4,	12
1830 .....	2,388,	843	—	11
'31 .....	599,	428	—	1
'32 .....	3,737,	1,718	—	8
'33 .....	1,225,	645	—	16
'34 .....	—	15	134,	4
'35 .....	723,	340	773,	542
'36 .....	1,714,	937	147,	113
'37 .....	1,173,	1,080	160,	148
'38 .....	2,719,	750	273,	245
'39 .....	504,	223	1,	53
1840 .....	—	8	—	67
'41 .....	124,	109	509,	774
'42 .....	4,865,	3,057	2,223,	4,654
'43 .....	5,982,	3,298	1,252,	1,277
'44 .....	3,000,	1,918	1,127,	2,796
'45 .....	3,801,	2,178	888,	645
'46 .....	3,803,	1,987	1,064,	2,395
'47 .....	4,667,	2,797	983,	897
'48 .....	2,247,	685	411,	885
'49 .....	1,755,	898	845,	1,912
1850 .....	1,402,	1,285	180,	438
'51 .....	4,014,	1,756	774,	1,649
'52 .....	8,053,	4,082	1,378,	2,559
'53 .....	10,598,	6,536	2,709,	8,400
'54 .....	3,590,	2,277	1,125,	253
'55 .....	8,448,	4,020	1,120,	7,606
'56 .....	4,806,	2,831	2,392,	4,374
'57 .....	4,496,	3,200	728,	2,804
'58 .....	803,	1,060	856,	2,412
'59 .....	1,548,	1,565	2,204,	9,561
1860 .....	2,556,	3,070	1,131,	4,185
'61 .....	7,625,	5,226	1,131,	4,438
'62 .....	7,836,	7,005	—	550
'63 .....	5,922,	8,202	1,372,	5,281
'64 .....	8,656,	10,469	1,758,	7,538
'65 .....	1,450,	1,437	1,835,	9,005
'66 .....	4,047,	2,774	2,059,	7,542
'67 .....	—	63	993,	1,054
Australian....	—	1,619	—	1,078
Totals ....	171,563,	100,000	41,574,	100,000

*Note.*—Some real and some apparent inaccuracies in this table are noticed in later parts of the paper.



I will describe firstly the results to which this census leads as regards the magnitude of the circulation. We observe in the above table that out of every 100,000 sovereigns now in circulation, 18,671 sovereigns are found on an average to bear the dates 1863 or 1864. Though the proportion of such coins undoubtedly varies in different localities, I feel certain, after drawing up many averages, that this proportion must be very near the truth. We may say, therefore, with confidence, that the whole circulation of sovereigns is  $\frac{100,000}{18,671}$ , or 5·356 times ( $5\frac{1}{3}$ ) as great as the number of sovereigns of 1863-64 now in the hands of the people. But the whole number of sovereigns coined in those years, as stated in the table, amounts to 14,578,000*l.*

The whole of this sum had not indeed, in March last, when the enumerations were for the most part made, passed into circulation; for according to information furnished to me by the Governor of the Bank, through the kind aid of Mr. Alfred Latham, it appears that the bank held the following quantities of sovereigns:—

	£
Sovereigns coined in 1864 .....	600,000
„                   '65 .....	500,000
„                   '66 .....	2,300,000
Australian gold .....	100,000
	<hr/>
Total unmixed coin .....	3,500,000
Mixed sovereigns received from circulation .....	2,600,000
	<hr/>
	6,100,000
	<hr/>

As 600,000 sovereigns of the coinage of 1864 were thus lying in bags as received from the mint, they cannot have contributed anything to the proportions shown in my census. The quantity of sovereigns of 1863-64 in the hands of the public cannot exceed, therefore, 14,578,000*l.* minus 600,000*l.*, or just about 14,000,000, and as the whole of the mixed circulation of sovereigns is  $5\frac{1}{3}$  times this quantity, it is thus ascertained not to exceed 75,000,000. In this quantity are included all masses of sovereigns which do not greatly differ in age and composition from the general average as shown in my census. I have no reason to suppose that bags of unmixed coin as issued by the mint, or other peculiar parcels of coin, exist anywhere in considerable quantities but in the Bank of England, where they amounted in March last, as already stated, to 3,500,000. Adding in this sum, we find that the total stock of sovereigns in this country cannot exceed—



	£
Mixed coin of various age.....	75,000,000
Undistributed coin .....	3,500,000
Total .....	<u>78,500,000</u>

By a similar calculation, I have determined that the number of half-sovereigns cannot be conceived as exceeding 24,000,000, or 12,000,000*l.* in value, for it will be seen, from the enumeration of 75,036 half-sovereigns, that 12,819 out of every 100,000 in circulation, are found to be of the coinage of 1863 and 1864. In other words, the whole circulation of half-sovereigns cannot exceed  $\frac{100,000}{12,819}$ , or about eight times the whole coinage of half-sovereigns in 1863-64. Now, as the coinage of those years amounted to 1,565,000*l.* (3,130,000 pieces, see table, p. 440), we have only to multiply this by 7·8, and we then ascertain that the total number of half-sovereigns cannot exceed about 12,000,000*l.*

The whole circulation of gold in the United Kingdom cannot, therefore, exceed—

	£
Sovereigns .....	78,500,000
Half-sovereigns .....	12,000,000
	<u>90,500,000</u>

This sum, however, is not the probable amount of the circulation, but the maximum limit within which it must lie; for it is certain that some portions of the coinage of 1863-64 have already been exported or melted, and for every million sovereigns thus withdrawn,  $5\frac{1}{2}$  millions must be subtracted from our estimate. In attempting to make some allowance of this kind, we shall commit no appreciable error, and shall be in fact on the safe side in supposing that the whole exportation has fallen on the sovereigns, and this we are obliged to do, as the custom house returns do not discriminate sovereigns and half-sovereigns. The quantities of British gold coin registered for export since 1864 are as follows :—

	£
Registered exports in 1865.....	3,390,910
"              '66.....	4,007,089
"              '67.....	1,266,654
	<u>8,664,653</u>

There is no means of determining from the above, with any accuracy, how much of the coinage of 1863-64 has been exported, but as exporters prefer the newest and heaviest coin, we are pro-



bably safe in assuming that the sovereigns of 1863-64, which form about one-fifth of the sovereign currency, also form one-fifth of the above exports. We may then subtract 1,750,000*l.* from the coinage of 1863-64, which formed the basis of our calculation. Our estimate will then stand as follows:—

	£
Sovereigns coined in 1863-64 .....	14,600,000
Subtract: in Bank .....	600,000
„ exported (say).....	1,750,000
	<hr/>
	2,350,000
	<hr/>
	12,250,000
Multiply by .....	5.356
	<hr/>
	65,600,000
	<hr/>

Reducing this a little for the sake of getting round numbers, we may state our estimate finally as follows:—

	£
Sovereigns in circulation .....	64,500,000
Unmixed sovereigns .....	3,500,000
Half-sovereigns .....	12,000,000
	<hr/>
Total gold circulation.....	80,000,000
	<hr/>

Since I commenced this inquiry, facts have come to my knowledge which altogether prevent me from supposing that the gold coinage is as much as the above. Any pretensions to rigid accuracy, which the preceding calculations might otherwise possess, are removed by the selection and melting of newly issued coins, which is believed to be extensively carried on by the largest and most respectable firms of capitalists and bullion dealers. No precise information can be procured as to the amount of the newest and heaviest coins thus destroyed but they may be asserted to amount to millions in the course of the few last years. Reference is made to this practice in the Report of the British Representatives at the recent Paris conference, in the following terms:—

“There is reason to believe that large masses of new British sovereigns are occasionally treated so as to separate out the heavy pieces, and these are disposed of as bullion; while the lighter pieces, which may still be all of legal weight, are preserved and put into circulation. This fact will not surprise those persons who are aware of the small margin of profit upon which bullion transactions are often conducted.”

Now if, in the prosecution of this peculiar trade, a million sovereigns of 1863-64 have been melted up, we must reduce the estimate by 5,000,000*l.*, and in a similar ratio for larger quantities.



All, therefore, that I can assert to be shown by my calculations is, not that the gold circulation amounts to 80,000,000*l.*, but that *it is under eighty millions, and probably lies somewhere between seventy and eighty millions.* But I shall regard 80,000,000*l.* as the safest estimate to employ in all the other calculations of this paper.

Let us compare this estimate with others lately put forward. Messrs. Graham and Wilson, in their official Report on the Paris Conference, speak of the whole gold currency as "variously estimated at from 80,000,000*l.* to 120,000,000*l.*" The International Coinage Commission adopt the same limits, remarking that "it is impossible to ascertain the actual amount of sovereigns and half-sovereigns in circulation, the estimates varying from 80,000,000*l.* to 120,000,000*l.*" Yet, as will be seen, my method of calculation *demonstrates* that the amount cannot exceed about 90,000,000*l.*, and shows that it probably falls below 80,000,000*l.*, the lower limit of the commission.

The late Mr. Miller, of the Bank of England, gave much attention to this subject, and is stated\* to have considered that there could not have been less than 80,000,000*l.* sterling of gold in the country; but there is still the difference between our estimates, that he regarded 80,000,000*l.* as the lower limit, while I am confident that it is above the truth. Mr. Weguelin, when Governor of the Bank, stated it to be his opinion that the gold coin was between 40,000,000*l.* and 50,000,000*l.*, which is clearly too low; and Mr. Hankey, in his work on Banking, adopts a medium amount, "somewhat less than the calculation of Mr. Miller, still considerably nearer to his statement than to that of Mr. Weguelin." This medium amount would thus, in my opinion, be close to the truth.

By far the most important estimate, however, which we have to consider, is that of Mr. Newmarch, who has, in one of his Appendices to "Tooke's History of Prices,"† published an excellent inquiry into this subject. Mr. Newmarch has employed, indeed, the old method of estimation, which consists in assuming, on necessarily feeble evidence, a certain amount of coin as in use in a given year, adding the issues of new coin from the Mint or the Bank, subtracting the known amounts of light gold withdrawn, and also the amount exported, according to the most probable estimate. Thus, Mr. Newmarch takes 46,000,000*l.* as the probable circulation at the close of 1846, adds 64,000,000*l.* coined and issued since, making 110,000,000*l.*, and then subtracts 25,000,000*l.* for exports to Australia, &c., 6,000,000*l.* of coin cancelled for deficiency of

\* "Hankey on Banking," p. 67.

† Appendix xxii, vol. vi, p. 696.



weight during the years 1844-56. This would give as a result 79,000,000*l.*, but he makes a further arbitrary reduction on account of unknown exports to various parts of the world, and sums up as follows :—

“ I am disposed to think, that if the amount of the gold coin circulation was 46,000,000*l.* in 1844, we may suppose it to be, say “ *seventy millions* in 1856 (that is to say, 50 or 60 per cent. more) “ without any extreme departure from the probabilities of the case “ when they are carefully examined. And considering the general “ tenour of former estimates of the quantity of gold coin in circu- “ lation in the United Kingdom, it does not appear that a supposi- “ tion of even *seventy-five millions sterling*, as the quantity at the “ close of 1856, would be unduly exaggerated.”

To bring this estimate into comparison with my own, it is necessary to make allowances for the large quantities of coin since issued, as well as for the export and withdrawal of sovereigns. This is done in the following statement :—

	£
Assumed circulation at close of 1856 .....	75,000,000
Add reimports of British coin, 1858-66 .....	14,000,000
„ issues from mint .....	52,000,000
	<hr/>
	141,000,000
Subtract light gold cancelled at bank, } 500,000 <i>l.</i> per annum .....	5,500,000
Gold coin exported, 1857-66 .....	41,500,000
	<hr/>
	47,000,000
	<hr/>
Total .....	94,000,000
	<hr/>

The above exceeds my estimate by at least 14,000,000*l.*, but a considerable part of this discrepancy may be fairly attributed to the incomplete registration of exports of gold coin at the custom house. It is thus apparent that if we took Mr. Newmarch's lower estimate of 70,000,000*l.*, there would remain but little discrepancy between that and my estimate of 80,000,000*l.* But if even my own estimate of 80,000,000*l.* is above the truth, owing to the extensive practice of melting new coin, in the same degree we must consider that Mr. Newmarch's estimate of 70,000,000*l.* is in excess of the truth. If any one could estimate the circulation correctly in the old manner, it would be Mr. Newmarch; but there are such inherent inaccuracies in all accounts of the export of coin, that we can rely upon no calculation in which they play an important part; and I have satisfied myself by working from my own maximum estimate of 80,000,000*l.* backwards to the year 1852, that there is from



20,000,000*l.* to 25,000,000*l.* of the coinage which is not to be accounted for by the custom house returns, and which must have disappeared by melting or secret exportation during that interval.

It will be interesting now to form a notion of the complete aggregate of the circulating medium of the United Kingdom, by which I mean the whole standing stock of gold, or of the immediate representatives of gold, consisting of bank notes convertible at will. By a very limited and rough investigation of the dates of shillings in circulation, I have estimated that out of a total silver coinage of 19,500,000*l.* issued since 1816, there remains in use about 14,000,000*l.* The Master of the Mint, indeed, in his evidence before the Decimal Coinage Commission in 1857, stated the quantity of silver coinage *presumed to be* in circulation at 14,167,000*l.*, since which time nearly 4,000,000*l.* of new coin has been issued, and rather more than 1,000,000*l.* has been withdrawn, which would leave 17,000,000*l.* of silver coin in use, but no allowance is made in this for the loss, destruction, and exportation of the silver coin which in the course of fifty years must have amounted to a large sum. I, therefore, think 14,000,000*l.* not an improbable amount to assign. Owing to the recent issue of the bronze coin, we know its amount to be almost exactly 1,000,000*l.* sterling in nominal value. Thus the metallic currency will consist of—

	£
Sovereigns .....	68,000,000
Half-sovereigns .....	12,000,000
Silver coin .....	14,000,000
Copper „ .....	1,000,000
	<hr/>
	95,000,000
	<hr/>

The bullion in the Bank of England must be regarded as a portion of the circulating medium, since it is represented by notes. The whole metallic basis of our currency will then be about the present time :—

	£
Coin .....	95,000,000
Bullion (say) .....	15,000,000
	<hr/>
	110,000,000
	<hr/>

We ought to add such variable amount of bullion as may be in the hands of bullion brokers, refiners, and others, which may occasionally amount to some millions.



As regards paper equivalents of gold, we must take the whole issues of the United Kingdom and subtract such part as merely represents an equal quantity of coin employed in guaranteeing the notes. The coin reserves of the English banks are quite unknown, but we may suppose that the issues of English notes, amounting to 5,000,000*l.*, are backed by 1,500,000*l.* of coin. The Scotch and Irish issues may be taken at 10,000,000*l.*, with a set off of 4,500,000*l.* of coin and bullion, ascertained from the monthly official returns. The circulating medium may be stated, then, as follows :—

	£
Coin .....	95,000,000
Bullion .....	15,000,000
Notes issued by Bank of England on security .....	15,000,000
English bank issues .....	5,000,000
Specie to be subtracted .....	1,500,000
	<hr/>
	3,500,000
Scotch and Irish issues .....	10,000,000
Specie to be subtracted .....	4,500,000
	<hr/>
	5,500,000
	<hr/>
Total .....	134,000,000
	<hr/>

It appears, then, that after all the interminable discussions on the paper currency, and the vast power attributed to the Bank of England in creating or preventing oscillations of prices and credit, our currency is metallic to the extent of 110,000,000*l.*, or four-fifths (80 per cent.), and that only 24,000,000*l.*, or one-fifth part, can be considered to rest on credit.

### III.—*The Age of the Gold Circulation.*

An examination of the comparative age of the sovereigns current in different parts of the country has revealed some facts of interest. These will be detected in the following table, which exhibits the average composition of the sovereign currency in a number of towns and districts, the counties of England being grouped as in the Reports of the Registrar-General. A similar table is added, showing the comparative age of the half-sovereigns in different districts; but though considerable variations are proved to exist, they do not seem to admit of any simple explanation, and my remarks will be chiefly confined to the more important case of the sovereign circulation.



Name of Town or District.	Proportion of Current Sovereigns Coined in the Period.						
	1817-19.	1820-29.	1830-39.	1840-49.	1850-59.	1860-67.	Australian.
London .....	·1	6·5	5·6	17·1	28·7	40·0	2·0
„ further returns....	·1	6·2	6·4	16·9	28·3	40·1	2·0
Manchester .....	·1	4·4	4·9	13·1	29·4	46·8	1·3
„ (Mr. Ross) .....	·2	4·3	4·6	11·8	27·7	49·7	1·7
Birmingham .....	·2	6·9	6·4	17·1	28·6	39·6	1·2
Swansea .....	·2	8·4	7·4	15·7	28·4	37·0	2·9
Hull and Bridlington .....	·4	9·3	8·1	20·3	30·8	30·4	·7
Ormskirk .....	·1	6·8	5·7	17·2	31·1	38·2	·9
Glasgow .....	·3	10·6	8·0	12·1	28·3	38·0	2·7
Edinburgh .....	1·1	8·6	5·5	18·9	25·8	39·0	1·1
Eastern counties .....	·2	10·5	11·5	22·0	28·5	25·7	1·6
South-Eastern counties....	·2	7·0	7·8	17·7	29·9	35·7	1·7
South-Western „ .....	·4	7·8	8·2	17·2	32·1	34·9	1·4
South Midland „ .....	·1	7·8	8·1	19·6	27·6	35·6	1·2
West „ „ .....	·4	9·2	8·2	15·9	27·1	38·3	·9
North „ „ .....	·4	9·2	7·9	16·6	26·6	38·2	1·1
Lancashire and Cheshire .....	·2	7·1	6·3	16·1	26·6	42·5	1·2
Yorkshire .....	·3	7·3	6·9	14·9	27·0	42·6	1·0
Northern counties .....	·2	6·4	6·6	16·5	26·6	42·7	1·0
North Wales .....	·2	8·5	7·5	17·4	27·5	38·1	·8
South „ .....	·3	7·7	9·5	18·9	26·9	35·6	1·1
North Ireland .....	·2	5·9	6·6	17·5	31·8	36·8	1·2
South „ .....	·2	9·3	7·3	19·9	29·8	32·2	1·3
Scotch Highlands .....	·2	6·6	6·9	17·2	27·5	40·7	·9
Scotch Lowlands, Bank of Scotland.....	·1	7·3	6·2	14·8	28·7	40·6	2·3
General average*....	·2	7·4	7·0	16·9	28·6	38·3	1·6

\* Calculated from the general aggregate, see table on p. 440.

*Note.*—EASTERN COUNTIES: Essex, Suffolk, Norfolk.

SOUTH-EASTERN: Surrey, Kent, Sussex, Hants, Berks.

SOUTH-WESTERN: Wilts, Dorset, Devon, Cornwall, Somerset.

SOUTH MIDLAND: Middlesex, Herts, Bucks, Oxford, Northampton, Huntingdon, Bedford, Cambridge.

WEST MIDLAND: Gloucester, Hereford, Salop, Stafford, Worcester, Warwick.

NORTH MIDLAND: Leicester, Rutland, Lincoln, Nottingham, Derby.

NORTHERN: Durham, Northumberland, Cumberland, Westmoreland.

NORTH IRELAND: Ulster, Connaught.

SOUTH „ Leinster, Munster.



Name of Town or District.	Proportion of Current Half-Sovereigns Coined in the Period.						
	1817-19.	1820-29.	1830-39.	1840-49.	1850-59.	1860-67.	Australian.
London .....	·7	1·1	1·0	14·1	33·7	48·4	1·0
Manchester .....	·5	1·7	1·1	17·3	41·7	37·2	·5
Birmingham .....	·5	1·5	1·4	21·7	39·2	35·4	·3
Swansea .....	·6	1·9	1·9	17·8	40·5	36·4	·9
Hull and Bridlington ....	·7	1·4	1·3	20·3	41·9	33·9	·5
Glasgow .....	·5	1·4	1·8	13·1	33·7	47·7	1·8
Edinburgh .....	·6	1·1	·9	16·1	39·1	41·2	1·0
Eastern counties .....	·9	2·0	1·1	18·9	38·7	37·3	1·1
South-Eastern counties ...	·7	1·4	·7	17·9	38·2	39·5	1·6
South-Western „ ....	·4	1·5	1·7	17·9	41·8	35·4	1·3
South Midland „ ....	·4	2·2	2·8	21·2	36·6	36·5	·3
West „ „ ....	·4	1·9	1·2	19·8	43·8	32·4	·5
North „ „ ....	1·8	2·9	·8	18·4	44·3	31·0	·8
Lancashire and Cheshire ..	·3	1·3	1·2	20·0	44·5	32·3	·4
Yorkshire .....	·5	1·5	1·3	18·5	42·5	35·1	·6
Northern counties .....	·2	·8	1·0	17·7	37·7	40·8	1·8
North Wales .....	1·1	·5	1·8	20·0	47·2	28·7	·7
South „ .....	·2	1·1	1·6	18·6	37·0	41·0	·5
North Ireland .....	·2	1·0	·9	20·7	44·6	32·2	·4
South „ .....	·5	·8	1·4	21·1	47·2	28·3	·5
Scotch Lowlands .....	·5	1·3	1·5	17·8	38·7	39·1	1·1
„ Highlands .....	·4	1·1	·8	13·5	43·5	39·6	1·1
General average ....	·5	1·3	1·1	16·3	40·1	39·6	1·1

As a general result, it may be stated that the coin is newer in the manufacturing and mining districts, and that the proportion of old coin increases as we pass into purely agricultural counties. Thus, the greatest proportion of old coin occurs in the eastern counties (Norfolk, Sussex, Essex), and in the south-eastern counties (Surrey, Kent, Sussex, Hampshire, and Berkshire), although all these counties are in the vicinity of the metropolis. Of all towns for which I have sufficient data, Manchester seems to have the newest currency; this fact being confirmed by a separate excellent enumeration of 3,358 sovereigns, procured for me by Mr. Ross, of the Manchester and Liverpool District Banking Company. It will be seen that nearly half the sovereigns current in Manchester have been coined since the beginning of 1860. Birmingham, Swansea, Hull, Ormskirk, for which I have also adequate information, do not show such extreme newness, and the coinage in Hull is considerably older than the average, although the town possesses a branch of the Bank of England. London, it will be seen, approaches very close to the general average of the kingdom, except that there is an



unusual infusion of Australian coins. Nearly 3 per cent. of the sovereigns current in Swansea and the neighbourhood are from the Sydney Mint, and there is also a percentage of 2·3 per cent. in the Scotch Lowlands, as shown in the returns of the Bank of Scotland. It is remarkable that the whole of Scotland, as well as the northern counties of England, stand high as regards the proportion of new coin; but the same peculiarity does not belong to either Wales or Ireland.

A little inquiry has enabled me, with the aid of the above numbers, to detect the general course of circulation through which the gold currency seems to pass. To a great extent, indeed, the motion of the currency is altogether indiscriminate, and coins may be conveyed by travellers, by railway remittances, or in other ways, from any one place to any other. Thus is produced the general similarity shown, with few exceptions, in the returns from all places. But there will yet be almost sure to arise prevailing currents of coin passing in determinate directions, arising from the outward and inward trade of a district being conducted in different modes. Thus, a considerable quantity of gold must be carried by tourists every summer into North Wales and Scotland. In Wales it adds to the superfluity of gold, which is very marked there; in Scotland it often furnishes the branch banks with the only gold they possess, so general is the use of notes in most parts of Scotland. But the chief movement of gold coin seems to go on in the pockets of dealers in cattle, horses, farm produce, &c., &c., who avoid bank commission by carrying actual cash, and a portion of it, at least, in gold. It is certain that agricultural produce must move in general from the purely agricultural counties towards the manufacturing districts and great towns. Coin will often be carried back in payment for it, whereas the goods purchased by the agricultural counties from the manufacturing towns will usually be paid for in drafts and cheques.

In North Wales, as has been kindly explained to me by Mr. Hugh Roberts, manager of the Holyhead branch of the North and South Wales Bank, there is a constant plethora of gold coin, arising partly from tourists and temporary residents at watering places, but mainly perhaps from the farmers and dealers, who sell their cattle, horses, sheep, wool, butter, and other agricultural produce, and prefer payment in cash. The greater exports of Wales, such as slates, paving stones, ores, &c., will always be paid for in paper remittances, but then almost the whole of the imports of draperies, flour, groceries, liquors, ironmongery, coals, &c., will be paid for without specie. Even commercial travellers, when they receive cash payments from the smaller shopkeepers and dealers, will often deposit the cash in a local bank and make a remittance by a draft.



It thus falls upon the local country banks to restore the equilibrium of the currency by making frequent remittances of specie to London, or to the head offices in a neighbouring large town, to meet the drafts. But in the manufacturing towns and districts the current is in the opposite direction, as also in the neighbourhood of the Government dockyards; vast sums are here drawn in actual coin for the payment of wages, most of which, indeed, circulates in the neighbourhood, and sooner or later returns to the local banks, but the remainder passes out of the district. As the manufactured products will almost always be met by bills, drafts, and cheques, there is no compensating current of coin, and the town banks have to draw coin either from their branches, from the nearer country banks, or from the Bank of England and its branches. It is through the Bank that new coins are distributed to the public, for the branches never, in ordinary circumstances, send any good coin to Threadneedle Street,\* whereas the bank, in addition to what it pays out in London, remits 2,375,000*l.* annually on the average of the years 1855-64 to the branch banks, chiefly in the dividend months.

I have entered into these particulars concerning the one-sided movement of coin, because the effect upon the character of the circulation is important. For it is obvious that somebody must return to the Bank of England, or must export a certain quantity of coin annually, and it falls to the lot of the country banks in certain districts, especially those banks which have many country branches, to return this surplus coin to London. These banks, then, would have to bear the whole loss on light gold, did they not take the very evident precaution of remitting only new heavy Victorias. In the course of these inquiries I have received overwhelming evidence that this picking and *culling* of the coinage, as it used to be called, is practised as an ordinary business transaction by all banks which need to make remittances or to pay any coin into the Bank of England. Thus, a gentleman in the eastern counties writes to me, "It is customary for our branches to pick their surplus gold for remittance to head office, which yields on an average about 20 per cent. of bright or heavy gold; otherwise there would be a charge made for short weight, arising from wear and tear, when taken to the Bank of England."

It will thus be apparent that there exists a regular system, whereby the older coins are continually returned into the hands of the public, and the new heavy coins alone are returned to the Bank of England, or to those who would melt or export them. The age of

\* The aggregate amount thus remitted was only 298,751*l.* in the course of the ten years 1855-64, and this arose, as I am told, from peculiar circumstances.



a coin is so far from being a reason why it should be withdrawn from circulation, that it is the very reason why it is retained in it. The public in general manage to avoid any loss from the wear of the currency, and it is only particular banks and companies and ignorant individuals who incur unjust loss. Thus, I have heard of an unfortunate person who received several hundred pounds, probably his whole property, from a London bullion broker, and, without apprehending the result, took them to the Bank of England, where the larger part were cut, as being light, and a heavy commission charged.

#### IV.—*Proportions of Coinage Surviving.*

It is of some interest to examine closely the contents of the table, p. 440, showing the composition of the present gold circulation, in order to detect the effects which have been produced upon the coinage in the course of half a century by exportation, destruction, loss, or re-importation of coins. What we want to learn is, the degree in which the coinage of earlier years has been withdrawn from use, compared with that of later years, and this may be calculated from the fraction which the coins actually enumerated for me under the date of each year form of the total issue of coins in that year. This comparison, however, cannot be made year by year, because, until very lately, it has been the occasional practice at the Mint to use up the surplus stock of dated dies of one year in the following year; and it has even happened, during years of small coinage, that the whole of the coins issued during the year bore the date of the preceding year. These facts, for which I am indebted to the Master of the Mint, take away all accuracy from a comparison year by year; but if we aggregate several years together, taking care to commence and end with years of small coinage, we shall avoid any appreciable error. Since Mr. John Graham became Superintendent of the Coining Department of the Mint, a better system has been introduced, and a new series of dies with the proper date has been brought into use at the beginning of the new year. This practice began with the year 1864, so that it is possible some coins struck in 1863 bear the date of 1862; but it is not possible that any coined in 1865 bear the date of 1864. The only effect of these irregularities upon my estimate of the circulation, is to strengthen the probability of my assertion, that *the true amount of the gold currency lies under rather than over eighty millions.*

Aggregating the number of sovereigns and half-sovereigns shown in the table, p. 440, in the most convenient groups of years, and calculating from the same table the proportions which appear to have survived, on the assumption that the present mixed circulation



of sovereigns amounts to 64,500,000*l.*, and of half-sovereigns to 12,000,000*l.*, we have the following results :—

Intervals of Years.	Proportions of Sovereigns Coined now in Use.	Intervals of Years.	Proportions of Half-Sovereigns Coined now in Use.
1817-19 .....	·02	1817-19 .....	·04
'20-23 .....	·06	'20-22 .....	·05
'24-28 .....	·17	'23-29 .....	·08
'29-31 .....	·26	'30-39 .....	·19
'32-33 .....	·29	'40-45 .....	·41
'35-39 .....	·29	'46-50 .....	·45
'40-45 .....	·36	'51-57 .....	·65
'46-50 .....	·33	'58-62 .....	·95
'51-54 .....	·34	'63-64 .....	(1·00)*
'55-58 .....	·36		
'59-62 .....	·52		
'63-64 .....	·77		

\* Assumed.

It appears that of the sovereigns coined in 1817-19, not more than one-fiftieth part remain in circulation, and the proportion rises until between the years 1840 and 1858 it is about one-third. When exhibited graphically the numbers produce two curious curves, which are at once similar and different. In both cases there is an elevation in the period (1840-45), arising probably from the recoinage of the years 1841-43, when 12,000,000 or 14,000,000 sterling of gold coins were called in and distributed again in an unusual manner, so that more than a common proportion became fixed in the circulation. The most important peculiarity of these numbers, however, is the very small increase which takes place in the proportion of sovereigns preserved between the years 1832 and 1854. This indicates that there is a residuum of coin which is no longer subject to be exported or withdrawn like the rest of the circulation. For if the portions of coins exported were taken indifferently from the mixed mass of coin, we can readily see that the curve would have the form arising from a geometrical series, and would tend constantly upwards, without any contrary bends.\* The curve of half-sovereigns, were it not for the interruptions in 1840-45, would represent pretty nearly this normal form, and the deviation of the sovereign curve indicates the care with which exporters and melters of sovereigns have avoided taking any old or light coins.

\* Suppose  $a$  be the quantity of coin issued in any given year, and that  $\frac{1}{m}$ th part of the circulation be indifferently withdrawn every year; then at the end of  $n$  years, the quantity  $a$  will evidently be reduced to  $a \cdot \left(1 - \frac{1}{m}\right)^n$ .



*V.—On the Deficiency of Weight of the Gold Coinage.*

It appeared likely that the accurate information I had acquired, concerning the age of the gold currency, would become more valuable if joined with a determination of the average rate of wear of the coins. For there was reason to suppose that the wear of a sovereign would be approximately uniform and proportional to its age, so that the average age of a number of coins would become a sure indication of their amount of depreciation. Coins of different age, being indifferently used in the ordinary course of circulation, would suffer equal friction, so that any difference in the amount rubbed away could only arise from the different character of the metal or from the varying prominence of the impression. It might, perhaps, have been expected that sharp new coins would wear more rapidly than those old coins which have already been rendered smooth by wear; but my own weighings, as afterwards described, do not give much evidence of this, and the elaborate experiments of Cavendish and Hatchett seem to establish the contrary. It is true that when Mr. Hatchett rubbed stamped and unstamped pieces of gold against each other, with sand or other hard powder between, the stamped pieces were much the more worn, but when he caused a number of such pieces to be shaken against each other, without any powder, in a revolving box, during 11,880 revolutions, no difference whatever was observed in the loss of weight of smooth and stamped pieces.\* It is the latter experiment which seems to me to represent most truly the kind of friction to which coin are most exposed in the purse, the pocket, the till, or the bullion scales.

To determine the wear of the currency, I thought that a very accurate weighing of a moderate number of coins of different ages, would be better than the ordinary rough weighings of larger quantities of coin as conducted in bank scales. I have, therefore, at several times during the present year, drawn gold from the ordinary circulation at Manchester, amounting in all to 434 sovereigns and 178 half-sovereigns, and after a careful cleansing, have weighed them upon a delicate chemical balance, put at my disposal for the purpose by Dr. Roscoe. All the half-sovereigns, and 280 of the sovereigns were weighed individually.

The sovereigns of 1860-67 are, with a single exception, of legal currency, but lie almost entirely between the standard weight 123·274 grains (7·9879 grms.) and the lowest weight of legal currency 122·5 grains (7·9379 grms.), the average being 123·04 grains (7·9728 grms.); of the sovereigns of 1850-59, only one was up to the correct standard, and many were not a legal tender. Even the average weight of those coined in 1840-49 fell below the legal limit,

\* "Philosophical Transactions" (1803), vol. xciii, p. 172.



and coins of greater age descend, on the average, in proportion to age, but with greater individual divergencies. Thus, while the sovereigns of 1817-29 are, on an average, more than one grain below the legal limit, one of them descends to  $119\frac{1}{2}$  grains.

The following table shows the average rate of wear of sovereigns of different ages in decennial groups. The deficiency is calculated from the average weight of sovereigns issued from the mint, as determined by a weighing of 1,000 new sovereigns executed at the Bank of England in March, 1868, at the desire of the International Coinage Commission (Report, p. 94). Thus, while the standard weight is 123·274 grains, the weight of those issued is a small fraction less, namely, 123·260 grains.

Years of Issue.	Number of Sovereigns Weighed.	Average Weight of the Sovereigns.	Deficiency from Mint Weight.	Average Date of Coinage.	Average Annual Loss of Weight.
		Grains.	Grains.		Grains.
1817-29 .....	31	121·40	1·86	1824·7	·043
'30-39 .....	22	121·92	1·34	'34·3	·040
'40-49 .....	44	122·16	1·10	'45·8	·051
'50-59 .....	129	122·72	·54	'54·6	·042
'60-67 .....	208	123·04	·22	'63·1	·050
Mint weight...	—	123·26	—	( '67·5)	—

In order to ascertain the complete average rate of wear of the whole, I have calculated the average weight of the sovereigns to be 7·9515 grms. (122·71 grains), and the average date of issue to be 1854·6. The weight as issued from the mint being 7·9871 grms. (123·26 grains), we have a deficiency of ·0356 grms. ('55 grain), caused by 12·9 years' wear, counting up to the middle of the year 1867; and  $\cdot0356 \div 12\cdot9 = \cdot00276$  grms. ('043 grain), the required result.

As the coins when issued weigh 7·9871 grms., and they cease to be legal tender when they fall below 7·9379 grms. (122·5 grains), it is easily calculated that just about eighteen years' wear will reduce a sovereign below its point of legal currency. Of course it is not meant that every sovereign will be light after eighteen years' wear, for some are coined heavier than others, or undergo less wear from accidental circumstances; but these will be balanced by others coined lighter, or subject to more severe wear. But it would be hard to name a subject in which reasoning by averages may be more safely trusted than the present, because the coinage consists of an immense number of pieces which are constantly circulating through every part of the country and in every kind of business. A little reflection will show, I think, that though the age of any individual coin is but a poor criterion of its weight, that the age of 1,000,000, or 1,000, or even 100 coins drawn from the ordinary mixture in circu-



lation, must be a very sure criterion, as it is in the highest degree unlikely that even in 100 coins, the accidental peculiarities of the history of any of those coins should influence appreciably the general average.

My results are strongly corroborated by experiments made at the Mint in the year 1833, by weighing parcels of 300 sovereigns, coined in each of the years 1817, 1821, 1825, and 1829.\* The average annual wear calculated from these data is as follows:—

Sovereigns of 1817 .....	·034	grain per annum.
„           '21 .....	·047	„
„           '25 .....	·051	„
„           '29 .....	·054	„

The average of the whole is ·047 grain per annum.

The specimen of sovereigns for 1817 was evidently not properly chosen, as the wear was actually less for sixteen years than in the coins of 1821 for twelve years.

I can assume, therefore, with great confidence, that the proportion of sovereigns in circulation of a greater age than eighteen years, is equivalent to the proportion of illegally light sovereigns; and as the coinage of the years 1848-50 were not large, it would influence the result but little if we took twenty years instead of eighteen. Assuming, then, that sovereigns coined since the beginning of 1850 are of legal weight and the others light, we readily determine, from the table on p. 440, that 31·5 *per cent.* of the whole of the sovereigns in the kingdom are no longer of legal currency.

From the table on p. 448, we can also readily ascertain the varying proportion of light sovereigns in different parts of the country, as in the following statement—arranged in order of magnitude:—

	Per Cent.		Per Cent.
Eastern counties .....	44	North Scotland.....	31
Hull .....	38	Birmingham .....	31
South Wales .....	36	Glasgow .....	31
„ Midland counties .....	36	North Ireland .....	30
Edinburgh .....	34	Lancashire and Cheshire .....	30
South-western counties.....	34	Ormskirk .....	30
North Wales .....	34	Northern counties.....	30
West Midland .....	44	London .....	29
North „ .....	34	Yorkshire .....	29
South-eastern counties.....	33	South Scotland .....	28
Swansea .....	32	Manchester .....	22
General average.....	31·5	„ second enumeration	21

\* See G. R. Porter's "Tables of Revenue, &c., of the United Kingdom," part iii (1834), p. 16. Similar experiments made in 1826 give a like result. See "Jacob on the Precious Metals," vol. ii, p. 380.



It would seem that the proportion of light gold is now as great or greater than at previous times when a recoinage was being carried out or contemplated. Thus in the years 1840 and 1841, when light gold was freely received by the bank, for recoinage at the public expense, the proportion did not rise above 25 or 28 per cent.\* Of the old guineas current in 1807, 31·4 per cent. were under the least current weight, according to one experiment, and 46 per cent. according to another;† but the proportion of light half-guineas was greater, namely, 77 per cent.

The preceding statements concerning the lightness of the coin, are of a somewhat startling character, and I might hesitate to put them forward had I not strong collateral evidence of their trustworthiness. One very convincing fact consists in the extraordinary difference of age between the sovereigns in the Bank of England and those outside it. Of this I am enabled to judge by a return of 1,000 sovereigns, carefully prepared for me by Mr. Robinson, the Principal of the Issue Department, at the desire of the Governor. The composition of this return is shown below, the results of a like return from the branches of the London and Westminster Bank being given for the sake of comparison:—

	Bank of England.	London and Westminster Bank.
	Per cent.	Per cent.
Coined in 1817-19.....	0·0	·2
„ '20-29.....	·4	6·9
„ '30-39.....	·2	7·7
„ '40-49.....	2·3	18·7
„ '50-59.....	23·5	30·3
„ '60-67.....	69·1	33·6
„ Australia .....	4·5	2·6
	100·0	100·0

The sovereigns enumerated for me at the Bank, were intentionally selected by Mr. Robinson as a fair specimen, and were taken, as I presume, from coin paid in by the public and purged of light coin by the weighing machines. Only 2·9 per cent. of coins

\* Newmarch, "Tooke's History of Prices," vol. vi, p. 701.

† "Jacob on Precious Metals," vol. ii, p. 382.



older than 1850 remain in such a sample, this small proportion consisting, no doubt, of those coins which were originally rather heavy, or have by some accident escaped the usual wear. The fact that some of the older coins are still of legal weight, does not prevent the age from serving as a criterion of *average* weight, because such old and heavy coins are balanced by an equivalent of new coins which by some accident are light. My own weighings show that 10 per cent. of the sovereigns of 1850-67 are below the limit of legal currency.

For sake of comparison, I have placed alongside the Bank of England return, the results of an enumeration of 1,600 sovereigns at all the branches of the London and Westminster Bank, which was kindly sent to me by the general manager: the reader cannot fail to notice the extraordinary difference.

I have calculated that the average age of the sovereigns in the Bank of England (Threadneedle Street), is 7·14 years, whereas the average age of the whole circulation of sovereigns in the United Kingdom is 15·35 years, or more than twice as much.

Almost as great a contrast exists between the coinage in the Branch Banks of England, so far as I can judge from returns with which I have been favoured by the agents at Newcastle and Plymouth.

*Proportional Number of Coins per Cent. of Different Dates.*

Interval of Years.	Plymouth Branch of the Bank of England.	Average of South-Western Counties.	Newcastle Branch of Bank of England.	Average of Northern Counties.
1817-19 .....	0·0	·4	0·0	·2
'20-29 .....	0·0	7·8	0·0	6·4
'30-39 .....	2·0	8·2	0·0	6·6
'40-49 .....	13·0	17·2	5·0	16·5
'50-59 .....	35·0	32·1	38·5	26·6
'60-67 .....	49·0	32·9	55·5	42·7
Australian .....	1·0	1·4	1·0	1·0
	100·0	100·0	100·0	100·0

I have additional confirmatory evidence of the quantity of light coin in circulation, derived from notes appended to the returns of sovereigns by the bankers or other gentlemen sending them. The



following is a brief statement of the percentage of light coin named as circulating in the respective places :—

	Sovereigns.	Half-Sovereigns.
	Per cent.	Per cent.
*Ballyshannon .....	25	50
Birkenhead .....	63	66
Buckingham .....	57	48
Dartford .....	65	48
Dublin .....	47	48
*Dundalk .....	25	—
*" .....	20	—
Farnham .....	56	74
*Halifax .....	25	—
Lampeter .....	15	87
Leominster .....	29	58
Liskeard .....	38	30
*London .....	62	70
" .....	66	88
*Liverpool .....	50	50
Nenagh .....	23	49
*Norwich .....	70	70
*Ramsgate .....	—	66
Wells .....	75	94

In the cases marked with an asterisk only a rough estimate has been given, but in all other cases the percentage of light coin was determined by weighing with the usual bank scales. These statements show a serious depreciation of the currency in many places where old gold happens to have accumulated. The average percentage of light coins would be, according to the above, about 45 per cent. of sovereigns, and 62 per cent. of half-sovereigns; but, though these statements seem to show that my estimate is not overdrawn they evidently cannot be considered as furnishing a general average.

Strong remarks on the lightness of the coinage were added by many gentlemen. Thus, the manager of a bank at Birkenhead says: "I have taken the two hundred of each sort above enumerated out of a considerable quantity which was paid in by various customers, and think they will give a very fair average of our coinage here. I subjoin the numbers of light and heavy gold respectively, hoping that something may be done to call attention and rectify the very unsatisfactory nature of our circulating medium." The result is stated in the table above.

From Cambridge I have the remark that, "the half-sovereign coinage is much worse than the sovereign; two or three years back it being found on trial that not more than 10 per cent. of this circulation was weight."

Halifax. "Half-sovereigns are extremely light and many should be called in."



Rochdale. "The greater portion of the gold in circulation "here is light."

Ramsgate. "Few sovereigns after two or three years circulation are now safe to send into the Bank of England without "careful weighing."

Saint Helens. "Gold generally light."

It is right to add that, among a number of other remarks, too numerous to give at length, were five or six expressing more or less satisfaction with the coinage.

The enumerations of coins which I have received from Ireland, present far wider differences than those from Great Britain. This doubtless arises from the practice of weighing the gold coin and charging a commission on light gold being strictly maintained in some Irish banks, although most of the banks have abandoned any such precaution. Two of my returns exhibit the following extraordinary contrast:—

	Carlow.	Bandon.
Sovereigns of 1817-19 .....	—	—
" '20-29 .....	—	37
" '30-39 .....	—	25
" '40-49 .....	14	10
" '50-59 .....	42	13
" '60-67 .....	44	15
Australian coins .....	—	—
	100	100

The correspondent who kindly furnished me with the second return has not been able to give me any decisive explanation of its exceptional character, but suggests that it may arise from some old deposits of gold coin in the banks having been brought forth during the run on the banks in the neighbourhood of Cork, occasioned by the Fenian alarm.

There is no difficulty now in calculating the actual deficiency of weight and value of the currency. One mode is by multiplying 15·35 years the average age of the sovereigns, by ·00276 grms. (·043 grain), the ascertained average annual wear. *The average deficiency of each sovereign therefore is ·0424 grm. (two-thirds of a grain, or ·66 grain), amounting to ·53 per cent., or quite 10s. in 100l.* On the total assumed quantity of 64,500,000 sovereigns, this deficiency would be 330,000l. The whole of this, however, would be covered by the allowance for wear of ·63 per cent. (·050 grm., or ·774 grain), if it were spread evenly over the currency. To detect the illegal deficiency, we must consider the old and new



coins apart. In a sum of 100,000 of the sovereigns as in ordinary circulation, the deficiency will be as follows:—

Years of Coinage.	Number of Sovereigns in 100,000.	Average Deficiency of each Piece.	Value of Deficiency in £100,000.
		Grains.	£
1817-19 .....	207	}	
'20-29 .....	7,402		116
'30-39 .....	6,979		77
'40-49 .....	16,935		114
'50-59 .....	28,612		128
'60-67 .....	38,246	'234	71
Australian .....	1,619	'214	2
	100,000	—	508

The whole of the deficiency upon sovereigns coined since the beginning of 1850 may be considered as covered by the allowance of .774 grain for wear; so that only the deficiency on earlier coins, amounting to 307*l.* in 100,000*l.*, or nearly one-third per cent., would require to be made good in a recoinage. On a total quantity of 64,500,000 this deficiency would be almost exactly 200,000*l.*

The weighings of 178 half-sovereigns, drawn from the ordinary circulation at Manchester, give the following average wear:—

Years of Issue.	Number of Half-Sovereigns Weighed.	Average Weight of Half-Sovereigns.	Deficiency of Weight.	Average Date of Coinage.	Average Annual Loss of Weight.
		Grains.	Grains.		Grains.
1817-49 .....	32	60·199	1·468	1844·5	·064
'50-59 .....	86	60·857	·780	'55·7	·066
'60-67 .....	60	61·298	·339	'63·2	·079

The wear thus indicated is considerably greater than that ascertained in the Mint experiments of 1833, which was as follows:—

Half-sovereigns of 1817 wear .032 grain per annum.

"	'21	"	·036	"
"	'25	"	·052	"
"	'29	"	·048	"

I cannot account for the difference, unless it is owing to the fact noticed by Mr. Jacob,\* that the gold money was not properly in circulation between 1817 and 1821. Not only does the worn appearance of old half-sovereigns now in use lead us to suppose that they have suffered much loss, but the fact that they offer more than three-quarters of the surface of sovereigns, and are much

\* "Precious Metals," vol. ii, p. 172.



more actively used in circulation, would lead us to expect a rapid wear.

Taking the average annual wear of the half-sovereign at  $\cdot 069$  grains, we find the length of time during which it will remain of full weight as follows :—

	Grains.	Grammes.
Standard weight of half-sovereigns.....	61·637	3·9938
Least current        „        „        .....	61·125	3·9609
	·512	·0329

$$\text{Hence } \frac{\cdot 512}{\cdot 069} = 7\frac{1}{2} \text{ years.}$$

As we cannot be sure that the half-sovereigns get into circulation for the first year or two of their existence, it will be well to take ten years so as to be on the safe side, and say that the number of light half-sovereigns is represented by the number coined before 1858. From the table on p. 440 we then learn that the proportion of light half-sovereigns is about 47 per cent. on the average of the whole country. On a total quantity of 12,000,000*l.* of half-sovereigns, this will amount to just  $5\frac{3}{4}$  millions sterling, and the annual cost of the wear will be at least 13,000*l.*, being about three times as great, in proportion to the value of the coin, as in the case of sovereigns.

The aggregate deficiency of value of the half-sovereign circulation may be calculated as follows :—

Years of Issue.	Number of Half-Sovereigns in 100,000.	Average Deficiency of each Piece.	Value of Deficiency in £100,000.
		Grains.	£
1817-49 .....	19,270	1·468	458
'50-57 .....	28,080	·780	356
'58-67 .....	51,570	·339	284
Australian .....	1,080	—	—
	100,000	—	1,098

Thus there is a deficiency in the half-sovereign circulation of just 1·1 per cent. in value; but as  $\cdot 83$  per cent. is covered by the allowance for wear, there remains an average illegal deficiency of  $\cdot 27$ , or quite 5*s.* in 100*l.* But if we pay regard only to the coin which is no longer legally current, the deficiency required to be made good in a recoinage amounts to 814*l.* for each 100,000*l.* of the present half-sovereign circulation, or in an assumed total quantity of 12,000,000*l.*, to about 100,000*l.*







some improvement should be made in the design of the sovereign. For, although only two or three gold coins have been mentioned as undecipherable in date, I have myself found it almost impossible to distinguish 3, and 5, and 0, and 6 upon many sovereigns of no great age. It is to a mistaken reading of numbers that I attribute a small number of coins enumerated in the table, p. 440, in years when no such coins were issued from the mint. These mistakes were quite insufficient to affect the accuracy of my deductions, but they could hardly have happened had the gold coin borne old-faced figures somewhat similar to those upon the new copper coin.

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